

What is claimed is:

1. Linear lens system for rigid endoscopes for conversion of a distal intermediate image (1) produced by an objective lens system into a proximal intermediate image (4), which has, through a first asymmetrically constructed series of two linear lenses (6, 7), a connecting odd-numbered series of equal, non-cemented, symmetrically biconvex linear lenses (10, 11, 12), whereby within each odd-numbered linear lens (10, 12) of this series a relay image (2, 3) of the previous intermediate image is formed, and a final series of two linear lenses (8, 9), which is arranged as a mirror image to the first series (6, 7).
2. Linear lens system according to claim 1, wherein the first (6, 7) and last series (8, 9) each consist of a plano-convex linear lens (6, 8) and a simply cemented biconvex linear lens (7, 9) situated close to the distal (1) or proximal intermediate image (4).
3. Linear lens system according to claim 2, wherein the cemented linear lens (7, 9) consists of a biconvex linear lens member (13, 14), a plano-concave intermediate member (15, 16), and a plano-convex linear lens member (17, 18).
4. Linear lens system according to claim 3, wherein the forward radius (21, 22) and the radius (19, 20) of the cemented surface of the biconvex linear lens member (13, 14) with the intermediate member (15, 16), as well as the glass parameters of these lens members (13, 14; 15, 16) are selected so that nearly all chromatic aberrations of the entire image conversion system are corrected.
5. Linear lens system according to claim 4, wherein the linear lens member (13, 14) consists of a glass with low partial dispersion and the intermediate member (15, 16) consists of a glass with high partial dispersion, whereby the refractive index is high for both lens members.

6. Linear lens system according to claim 3, wherein the plane surface inside the linear lens (7, 9) is arranged conjugate to a center plane (5) of the linear lens system.
7. Linear lens system according to claim 6, wherein a diaphragm is inserted into the plane surface.
8. Linear lens system according to one of the foregoing claims, wherein the optical parameters of the first series of linear lenses (6, 7) together with those of the first linear lens (10) are selected from the subsequent series in such a way that in the center plane of this linear lens (10) a first relay image (2) of the distal intermediate image (1) appears.
9. Linear lens system according to claim 1, wherein the odd-numbered series consists of at least three equal linear lenses (10, 11, 12).
10. Linear lens system according to claim 9, wherein the optical parameters of the three equal linear lenses (10, 11, 12) are selected so that in the center plane of the third linear lens (12) an additional relay image (3) appears.
11. Linear lens system according to claim 10, wherein one or several series of two equal linear lenses each are adjoined to the series of the three equal linear lenses (10, 11, 12).
12. Linear lens system according to one of the foregoing claims, wherein the radii and lengths of the respective equal linear lenses (10, 11, 12) are selected so that a telecentric beam entrance occurs both for the intermediate images (1, 14) and for the pupils of the linear lens system.
13. Linear lens system according to claim 12, wherein the linear lenses (10, 11, 12) consist of a glass with relatively low refractive index and low partial dispersion.

14. Linear lens system according to one of the foregoing claims with seven relays, characterized by the following construction parameters:

Surface No.1	Radius (mm)	Distance (mm)	Refractive n	Imaging No. v
Intermediate Image	Plane	3.4	Air	
1	Plane	7.0	1.52	64.1
2	-7.9	0	Air	
3	8.4	10.0	1.74	44.7
4	-1.2	1.0	1.78	26.1
5	Plane	0	Air	
6	Plane	11.6	1.52	64.1
7	-7.9	0	Air	
8	7.9	23.2	1.52	64.1
9	-7.9	0	Air	
10	7.9	23.2	1.52	64.1
11	-7.9	0	Air	
12	7.9	23.2	1.52	64.1
13	-7.9	0	Air	
14	7.9	23.2	1.52	64.1
15	-7.9	0	Air	
16	7.9	23.2	1.52	64.1
17	-7.9	0	Air	
18	7.9	23.2	1.52	64.1
19	-7.9	0	Air	
20	7.9	23.2	1.52	64.1
21	-7.9	0	Air	
22	7.9	23.2	1.52	64.1
23	-7.9	0	Air	
24	7.9	23.2	1.52	64.1
25	-7.9	0	Air	
26	7.9	23.2	1.52	64.1
27	-7.9	0	Air	
28	7.9	23.2	1.52	64.1
29	-7.9	0	Air	
30	7.9	23.2	1.52	64.1
31	Plane	0	Air	
32	Plane	1.0	1.78	26.1
33	1.2	10.0	1.74	44.7
34	-8.4	0	Air	
35	7.9	7.0	1.62	64.1
36	Plane	3.4	Air	
Intermediate Image	Plane	0	Air	